

Application No.: 09/965,985
Amendment Dated: November 14, 2005
Reply to Office Action of: June 13, 2005

YAO-4346US

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A video reproduction apparatus for reproducing video data based on a video bit stream having a plurality of pictures and also having a picture type representing a type of encoding for each of the plurality of pictures, the apparatus comprising:

a picture type detection section for, while a still picture is being reproduced, detecting a picture type of a picture, from among the plurality of pictures, corresponding to the still picture;

a bit rate calculation section for, while the still picture is being reproduced, calculating a number of bits included in the picture corresponding to the still picture, and while a moving picture is being reproduced, calculating an average bit rate per predetermined time unit, and selecting and outputting either the number of bits included in the picture corresponding to the still picture or the average bit rate per predetermined time unit;

a video signal generation section for, while the still picture is being reproduced, generating a first bit rate video signal for displaying the picture type detected by the picture type detection section and the number of bits calculated by the bit rate calculation section, and while the moving picture is being reproduced, generating a second bit rate video signal for displaying the average bit rate calculated by the bit rate calculation section;

a video decoder for expanding the video bit stream to generate a video signal; and

a video signal addition section for, while the still picture is being reproduced, adding the video signal generated by the video decoder and the first bit rate video signal generated by the video signal generation section so that the video

data, the picture type and the number of bits are displayed simultaneously, and while the moving picture is being reproduced, adding the video signal generated by the video decoder and the second bit rate video signal generated by the video signal generation section so that the video data and the average bit rate are displayed simultaneously.

2. (Cancelled).

3. (Previously Presented) A video reproduction apparatus according to claim 1, wherein the bit rate calculation section includes:

a picture start point detection section for detecting a picture start point which represents a start point of each of the plurality of pictures;

a bit number calculation section for, in response to the detection of the picture start point performed by the picture start point detection section, counting the number of bits included in each of the plurality of pictures;

a frame count section for counting a number of picture start points detected by the picture start point detection section to measure the prescribed time unit;

an addition section for, each time the picture start point detection section detects the picture start point, accumulatively adding the number of bits counted by the bit number calculation section, and outputting a resulting addition result as the average bit rate, while the predetermined time unit is measured; and

a switch section for selecting and outputting either the number of bits counted by the bit number calculation section or the average bit rate obtained by the addition section.

4. (Previously Presented) A video reproduction apparatus according to claim 1, wherein the bit rate calculation section includes:

a picture start point detection section for detecting a picture start point which represents a start point of each of the plurality of pictures and a GOP start point;

a bit number calculation section for, in response to the detection of the picture start point performed by the picture start point detection section, counting the number of bits included in each of the plurality of pictures;

a frame count section for counting a number of GOP picture start points detected by the picture start point detection section to measure the prescribed time unit;

an addition section for, each time the picture start point detection section detects the picture start point, accumulatively adding the number of bits counted by the bit number calculation section, and outputting a resulting addition result as the average bit rate, while the predetermined time unit is measure; and

a switch section for selecting and outputting either the number of bits counted by the bit number calculation section or the average bit rate obtained by the addition section.

5. (Previously Presented) A video reproduction apparatus according to claim 1, wherein the bit rate calculation section includes:

a picture start point detection section for detecting a picture start point which represents a start point of each of the plurality of pictures and a GOP start point which represents a GOP start point;

a bit number calculation section for, in response to the detection of the picture start point performed by the picture start point detection section, counting the number of bits included in each of the plurality of pictures;

an addition section for, each time the picture start point detection section detects the picture start point, accumulatively adding the number of bits counted by the bit number calculation section, and outputting a resulting addition result as the average bit rate, until the GOP start point is detected; and

a switch section for selecting and outputting either the number of bits counted by the bit number calculation section or the average bit rate obtained by the addition section.

6. (Previously Presented) A video reproduction apparatus according to claim 1, wherein the bit rate calculation section includes:

a picture start point detection section for detecting a picture start point which represents a start point of each of the plurality of pictures;

a bit number calculation section for, in response to the detection of the picture start point performed by the picture start point detection section, counting the number of bits included in each of the plurality of pictures;

a timer for counting time to measure the predetermined time unit;

an addition section for, each time the picture start point detection section detects the picture start point, accumulatively adding the number of bits counted by the bit number calculation section, and outputting the resulting addition result as the average bit rate, while the predetermined time unit is measured; and

a switch section for selecting and outputting either the number of bits counted by the bit number calculation section or the average bit rate obtained by the addition section.

7. (Currently Amended) A video reproduction method for reproducing video data based on a video bit stream having a plurality of pictures and also having a picture type representing a type of encoding for each of the plurality of pictures, the method comprising:

a picture type detection step of, while a still picture is being reproduced, detecting a picture type of a picture, from among the plurality of pictures, corresponding to the still picture;

a bit rate calculation step of, while the still picture is being reproduced, calculating a number of bits included in the picture corresponding to the still picture,

and while a moving picture is being reproduced, calculating an average bit rate per predetermined time unit, and selecting and outputting either the number of bits included in the picture corresponding to the still picture or the average bit rate per predetermined time unit;

a video signal generation step of, while the still picture is being reproduced, generating a first bit rate video signal for displaying the picture type detected by the picture type detection step and the number of bits calculated by the bit rate calculation step, and while the moving picture is being reproduced, generating a second bit rate video signal for displaying the average bit rate calculated by the bit rate calculation step;

a video decoding step of expanding the video bit stream to generate a video signal;

a video signal addition step of, while the still picture is being reproduced, adding the video signal generated by the video decoding step and the first bit rate video signal generated by the video signal generation step section so that the video data, the picture type and the number of bits are displayed simultaneously, and while the moving picture is being reproduced, adding the video signal generated by the video decoding step and the second bit rate video signal generated by the video signal generation step so that the video data and the average bit rate are displayed simultaneously.

8. (Cancelled).

9. (Previously Presented) A video reproduction method according to claim 7, wherein the bit rate calculation step includes:

a picture start point detection step of detecting a picture start point which represents a start point of each of the plurality of pictures;

a bit number calculation step of, in response to the detection of the picture start point by the picture start point detection step, counting the number of bits included in each of the plurality of pictures;

a frame count step of counting a number of picture start points detected by the picture start point detection step to measure the prescribed time unit;

an addition step of, each time the picture start point detection step detects the picture start point, accumulatively adding the number of bits counted by the bit number calculation step, and outputting a resulting addition result as the average bit rate, while the predetermined time unit is measured; and

a switch step of selecting and outputting either the number of bits counted by the bit number calculation step or the average bit rate obtained by the addition step.

10. (Previously Presented) A video reproduction method according to claim 7, wherein the bit rate calculation step includes:

a picture start point detection step of detecting a picture start point which represents a start point of each of the plurality of pictures and a GOP start point;

a bit number calculation step of, in response to the detection of the picture start point by the picture start point detection step, counting the number of bits included in each of the plurality of pictures;

a frame count step of counting a number of GOP picture start points detected by the picture start point detection step to measure the prescribed time unit;

an addition step of, each time the picture start point detection step detects the picture start point, accumulatively adding the number of bits counted by the bit number calculation step, and outputting a resulting addition result as the average bit rate, while the predetermined time unit is measured; and

a switch step of selecting and outputting either the number of bits counted by the bit number calculation step or the average bit rate obtained by the addition step.

11. (Previously Presented) A video reproduction method according to claim 7, wherein the bit rate calculation step includes:

a picture start point detection step of detecting a picture start point which represents a start point of each of the plurality of pictures and a GOP start point which represents a GOP start point;

a bit number calculation step of, in response to the detection of the picture start point by the picture start point detection step, counting the number of bits included in each of the plurality of pictures;

an addition step of, each time the picture start point detection step detects the picture start point, accumulatively adding the number of bits counted by the bit number calculation step, and outputting a resulting addition result as the average bit rate, until the GOP start point is detected; and

a switch step of selecting and outputting either the number of bits counted by the bit number calculation step or the average bit rate obtained by the addition step.

12. (Previously Presented) A video reproduction method according to claim 7, wherein the bit rate calculation step includes:

a picture start point detection step of detecting a picture start point which represents a start point of each of the plurality of pictures;

a bit number calculation step of, in response to the detection of the picture start point by the picture start point detection step, counting the number of bits included in each of the plurality of pictures;

a timing step of counting time to measure the predetermined time unit;

an addition step of , each time the picture start point detection step detects the picture start point, accumulatively adding the number of bits counted by

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the bit number calculation step, and outputting a resulting addition result as the average bit rate, while the predetermined time unit is measured; and

a switch step of selecting and outputting either the number of bits counted by the bit number calculation step or the average bit rate obtained by the addition step.